DETECTION OF *O*-NITROPHENOL IN WATER SAMPLES BY USING HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)

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ABSTRACT

DETECTION OF *O*-NITROPHENOL IN WATER SAMPLES BY USING HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)

Phenolic compound such as *o*-nitrophenol can be presented in the environment. Yet, in the water which will be consumed by the living organism. Due to its toxicity, it will give an effect towards the consumer. Thus, in this research, *o*-nitrophenol in water samples was detected by using HPLC-UV detector. There were few parameters were optimized which are effect of flow rate, column temperature, composition of mobile phase and wavelength by using 30 ppm of standard stock solution of *o*-nitrophenol. This analysis used C_{18} column as its stationary phase with isocratic elution of methanol:1% acetic acid (70:30) as the mobile phase. From the results obtained, the optimum flow rate, column temperature, composition of mobile phase and wavelength were 0.75 mL/min, 26°C, methanol:1% acetic acid (70:30) and 274 nm respectively. Solid phase extraction (SPE) method was used as an extraction method of water samples. At the end of this analysis, the analytical method was validated according to various parameter such as calibration curve, limit of detection (LOD), limit of quantification (LOQ), relative standard deviation (RSD%) and accuracy. For calibration curve ranging 5 ppm to 70 ppm, a good linear correlation coefficient was observed with R^2 = 0.997. Next, for calculated LOD and LOQ were 0.031 ppm and 0.102 ppm respectively. Lastly, RSD% for sample A was 0.853% and sample B was 0%. Thus, it can be conclude that *o*-nitrophenol presence in the environment due to the decomposition of wood and leaves.